INPUT

MANAGEMENT PLANNING PROGRAM FOR THE INFORMATION SERVICES INDUSTRY

MANAGEMENT BRIEF

INFORMATION SERVICES INDUSTRY OPPORTUNITIES IN HARDWARE SERVICES

AUGUST 1981

-1981
B2

MANAGEMENT PLANNING PROGRAM FOR THE INFORMATION SERVICES INDUSTRY

OBJECTIVE: To provide Information Services Industry managment with on-going business and market information to support their planning and product decisions.

DESCRIPTION: Clients of this program receive the following services each year:

- Major Planning Reports - Six in-depth studies which address specific industry sectors, cross industry markets, or key management issues related to marketing, software, technology and personnel developments over the nex
- Managemen nportant new technical ar attention by senior mana
- Annual Rep ains five-year forecasts, a nalysis of the informatior ndustry issues including pr
- Annual In-H eld in the fall of the yea nt and is an important d of the key issues facir
- Joint Clien ng, provides a vehicle for sing services trends as t speakers and subjects pr issues facing companies
- Inquiry Ser arch staff on an as-neede

RESEARCH METHOD: information services, software and re

- Research t s with client representa
- Research f s with users, vendors, ur sts.
- Conclusion judgement of INPUT's st
- Professional staff supporting this program have 20 or more years of experience in data processing and communications, including senior management positions with major vendors and users.

M-1981
MB2

AUTHOR
INFORMATION SERVICES INDUSTRY
TITLE
PROGRAM

M-1981
MB2

For further information on this report or program, please call or write:

INPUT
Park 80 Plaza West - I
Saddle Brook, NJ 07662
(201) 368-9471

INPUT
2471 East Bayshore Road
Suite 600
Palo Alto, CA 94303
(415) 493-1600

INPUT

INFORMATION SERVICES INDUSTRY PROGRAM

MANAGEMENT BRIEF

INFORMATION SERVICES INDUSTRY OPPORTUNITIES IN HARDWARE SERVICES

AUGUST 1981

Digitized by the Internet Archive
in 2015

https://archive.org/details/managementplanni02unse

INFORMATION SERVICES INDUSTRY OPPORTUNITIES
IN
HARDWARE SERVICES

CONTENTS

		Page
I	INTRODUCTION	1
II	OVERVIEW OF HARDWARE SERVICES	7
	A. Equipment	7
	B. Development Capabilities	11
	C. Application Packages	13
	D. Networking Potential	15
	E. Inclusion Of Other Services	16
	F. Marketing Approaches	17
	G. Pricing And Bundling Of Services	20
III	MARKETING STRATEGIES	23
	A. Retain Customers	23
	B. Add To RCS Business	24
	C. Expand Business Into New Areas	25
	D. Provide A Total Service	26
IV	POSITIONING FOR THE FUTURE	29
	A. Present Situation	29
	B. Establishing A Broader Base Of Service	31
	C. Migrating Services To Newer Technology	34
	D. Recommendations	35
	APPENDIX A: DEFINITIONS	39
	APPENDIX B: BIBLIOGRAPHY	41

©1981 by INPUT. Reproduction Prohibited.

INFORMATION SERVICES INDUSTRY OPPORTUNITIES
IN
HARDWARE SERVICES

EXHIBITS

			Page
I	-1	Market Forecast For Hardware Services, 1980-1985	3
II	-1	Selected Hardware Service Offerings	8
	-2	Selected Pricing And Bundling Of Services	21
IV	-1	RCS Vendor Capabilities And User Needs	32

©1981 by INPUT. Reproduction Prohibited.

I INTRODUCTION

- This report was produced as part of INPUT's 1981 Information Services Industry Program and examines a major shift in strategy relative to hardware related services in the information services industry.

- Throughout this report, these hardware related services will be referred to as hardware services as was adopted in INPUT's earlier report entitled The Merging of Hardware, Software and Services.

- Hardware services were selected for evaluation because of their growing importance to the information services industry, and the likely impact on the services market as the trend to such services accelerates.

- Hardware services are playing a critical role in both the success and future plans of remote computing service (RCS) vendors.

  - Recent announcements indicate that a significant number of the leading RCS vendors are now using these offerings for expanding services and revenues, as well as for preventing business erosion.

  - The lack of hardware services, or a strategy that responds to them, leaves many RCS vendors more susceptible to the migration of RCS work in-house to large-scale systems or minis, a problem that is now plaguing the RCS industry.

©1981 by INPUT. Reproduction Prohibited.

- Among the prime reasons for RCS vendor interest in hardware services are:
  - They provide a means of participating in the growing DDP market.
  - They provide a potential method of capturing a portion of the in-house timesharing market.
  - They provide entry into the small user area; i.e., less than $2,000 per month in billings.
- A new reason for a high level of interest in this area has surfaced in recent weeks, namely the yet unannounced service from IBM based on the "Hydra" concept.
  - Based on "console-less" 4300s, Hydra features unattended drone computers at remote sites attached to a host procesor.
  - This approach, tied to an IBM provided network (and there is one already in place), might well be the foundation of IBM's reentry into the Information services marketplace.
- In The Merging of Hardware, Software and Services, INPUT forecast that hardware services will increase from $815 million in 1981 to $1.9 billion by 1985, as shown in Exhibit I-1.
  - These estimates could be grossly understated if IBM returns to the marketplace in the fashion just described.
- Although the forecast for hardware services is bullish, RCS firms will encounter problems with these services, as seen by examining the progress made by early entrants.
  - Hardware offerings will be made without sufficient planning by RCS vendors. This includes both technical and market planning.

©1981 by INPUT. Reproduction Prohibited.

EXHIBIT I-1

MARKET FORECAST FOR HARDWARE SERVICES,

1980-1985

($ millions)

HARDWARE SERVICES	1980	1981	1982	1983	1984	1985	AAGR 1980-1985 (percent)
Intelligent Terminals	$ 200	$ 250	$ 310	$ 390	$ 510	$ 660	27%
Turnkey Systems	350	420	500	615	760	930	22
Other Minis and Micros	120	145	175	200	250	310	21
Total Hardware Services	$ 670	$ 815	$ 985	$ 1,205	$ 1,520	$ 1,900	23%
Total Processing Services	$8,340	$9,700	$11,360	$13,280	$15,570	$18,410	17%
Hardware Services Percent of Total Processing Services	8.0%	8.4%	8.7%	9.1%	9.7%	10.3%	-

©1981 by INPUT. Reproduction Prohibited.

- Some sales plans will not be met, and will be replaced without appropriately analyzing why sales did not occur.

- Marketing and sales strategies may not be sufficiently developed to effectively handle offerings of hardware services.

- During 1980, there were serious questions about the future of hardware services.

  - Only a small number of firms were aggressively marketing these products.

  - Several RCS firms indefinitely delayed or cancelled work on their hardware services programs.

  - One major vendor put his program into a hold state.

- The situation has changed since the beginning of 1981 for the following reasons:

  - The intensification of competition from software vendors and hardware manufacturers to influence the movement of RCS work in-house.

  - The success that some RCS vendors have had with hardware services.

    . One vendor, has nearly one thousand installations of a hardware service that is well suited for networking applications. This vendor has increased processing revenue and also gained new revenue from the hardware service.

    . Another vendor, has substantial revenue from sales of over 60 systems which are increasing in average price.

©1981 by INPUT. Reproduction Prohibited.

- RCS vendors realize that these systems are more than a means of reducing charges to customers in order to retain RCS business.

  - Hardware services have proven to take business away from minicomputers, software, and other RCS vendors.

    . In order to take business away from competitors, one major vendor is offering a hardware service with powerful development tools, a data base capability, and consulting aid. This provides an alternative to software houses who specialize in minicomputers.

    . Several RCS vendors make it a point to emphasize hardware services whenever they compete against other RCS vendors. They point out that they have the means of reducing RCS charges and helping customers to move in-house when they are ready.

- These systems can also be used to enter new business areas in minicomputer and microcomputer applications and to deliver software products, thus providing opportunities to enlarge business with present customers and to penetrate new accounts.

- Hardware services enable RCS vendors to emphasize their real strengths:

  - Their expertise in information processing.

  - Their trained personnel with experience in solving data processing and data communications problems.

- Shortages in trained personnel constitute a significant problem in information processing today, but provide a impetus for the growth of hardware services.

©1981 by INPUT. Reproduction Prohibited.

- This problem encourages the search for outside resources to solve problems in network applications, minicomputer use in database applications, the deployment of microcomputers with dedicated jobs, etc.

- This demand from users will cause vendors to consider a wider range of services than first envisioned when hardware services were announced.

- Hardware services can also provide opportunities for vendors to move applications and technical capabilities to newer technology.

- In effect, the following conclusions, reached in the report of February 1979, User Site Hardware from Computer Services Vendors, are coming to pass.

  - INPUT believes that user site hardware services (USHS) represent a significant new delivery system for traditional RCS which is being driven principally by the continuing reduction in computer hardware costs.

  - These "new hardware economics" are causing vendors to rethink the manner in which they service RCS requirements, with resultant changes in the traditional role that remote computing service firms have had in addressing this market.

  - Users will increasingly examine in-house conversion options to traditional service which, if not challenged by RCS vendors, will result in:

    . Erosion of their client base.

    . Missed opportunities in participating in the growing distributed data processing (DDP) market.

©1981 by INPUT. Reproduction Prohibited.

II OVERVIEW OF HARDWARE SERVICES

A. EQUIPMENT

- Exhibit II-1 illustrates the wide range of equipment being used for hardware services.
  - The most popular equipment supplier for hardware services is DEC.
    - DEC has a major support group aimed at marketing to the information services industry.
    - Many RCS vendors feel that DEC provides the widest range of peripheral and terminal devices.
- ADP Network Services and Tymshare use the DEC 2020 as a minihost.
  - Minihosts are offerings which provide all the software capabilities of the RCS host on a mini.
    - The operating system, data base management system (DBMS), applications and programming languages used in the host can be used on the minihost.

©1981 by INPUT. Reproduction Prohibited.

EXHIBIT II-1

SELECTED HARDWARE SERVICE OFFERINGS

COMPANY AND OFFERING	COMPUTER USED	CLASS	RELATED ACTIVITIES
ADP Onsite I	DEC 2020	Minihost	Has offered micros and announced Onsite II
BCS	Various minis, micros	Linked or stand-alone mini or micro	Offers network, SNA and SDLC and communi-cation hardware
CSC DNS	DEC 11/23, 11/44 or larger	Linked mini	May offer intelligent Terminal
GE Marklink	T.I. 990	Intelligent terminal (but as powerful as a mini)	Offers access to large network
Martin Marietta Remote Work Station	Micro	Intelligent terminal	Originally offered as a programmer work station
McAuto MDS	Microdata	Linked mini	
SBC CBS (Controlled Business System)	Data General	Standalone mini (could be linked)	Intelligent terminal to be announced
NCSS 3200	Four-Phase	Minihost	Has installed software on 158
Tymshare System XX	DEC 2020	Minihost	System E also offered. Dynasty using 11.23 an-nounced
Xerox	Micro	Intelligent terminal	Has additional offerings
New RCS vendors	DEC, Ultimate Datapoint, Honeywell	Linked mini	

©1981 by INPUT. Reproduction Prohibited.

  - . The minihost does not appear to be limited in capabilities relative to the host.

- These offerings have been competing with newer equipment, including VAX computers from DEC and equipment from Tandem, Perkin Elmer, and other manufacturers.

  - . The newer computers are being offered with software from OEM vendors at very competitive prices.

- Tymshare has also offered the IBM Series E as a minihost for its IBM based RCS service.

- The Four-Phase 3200 offered by NCSS and TSR as a minihost has also met competition from more recent minicomputers.

  - NCSS and TSR have both restricted the amount of equipment that a user can obtain with their hardware services.

    - . The hardware complement is sufficient to run the host software.

  - Both NCSS and TSR have offered their software on 370/158 systems.

  - NCSS has provided its operating system and data base management system for use on in-house IBM systems.

- Intelligent or enhanced terminals include many capabilities, ranging from terminals with aids for input and output to mini- or microcomputer based terminals containing powerful development tools and programming languages.

  - The upper end of this class is competitive with hardware services that are classified as minihosts or standalone minis.

©1981 by INPUT. Reproduction Prohibited.

- The GE Marklink has an operating system, programming languages, and applications software. It could really be described as a linked microcomputer.

- The Xerox 1350 has no operating system or programming languages.

  . It can concentrate input and receive output on disk for later printing. It is a limited intelligent terminal.

  . Recent announcements from Xerox indicate that enhanced terminals may be available to provide a more powerful hardware service.

- The upper end of intelligent terminals and minihosts are sometimes referred to as DDP offerings since processing could be distributed to a customer's sites.

• Minis that are provided as a hardware service without full software compatibility could be classified as linked or standalone depending on whether they are connected to the RCS service or operate without communication.

• Exhibit II-1 illustrates that a few RCS vendors are offering or experimenting with multiple offerings of hardware services.

  - The network services division of a vendor may offer an intelligent terminal, and the batch processing division may offer a minihost.

  - Timesharing services at SBC are offering an intelligent terminal, and batch processing is offering a mini with standalone applications.

• New types of RCS vendors, as noted in Exhibit II-1, appeared in the late 1970s to develop and run work on minis (and micros) at their sites.

©1981 by INPUT. Reproduction Prohibited.

- When the customer wants to move his work in-house, these new vendors will sell the equipment and software.

- These vendors use a variety of equipment, including DEC, Datapoint, MicroData, and Ultimate.

- At least 10 such centers are located in the New York City region, including Spectrum, Time Sharing Inc., and O.D.P.

B. DEVELOPMENT CAPABILITIES

- Present hardware services are primarily used for timesharing/problem solving, transaction processing, and applications development.

- One of the most attractive features of hardware services is the ability to accomplish applications development at the user's site, avoiding delays created by applications development backlog in the EDP department.

  - End users feel that there is a lack of EDP department capacity to develop applications.

  - EDP managers report that the applications development backlog is averaging 20 months and becoming longer.

- Both end users and EDP managers report growing importance of networking, with an even greater importance by 1985.

- Many different development capabilities are offered with hardware services.

  - Some RCS vendors offer the full range of development capabilities that are available on the host while others provide no development tools.

©1981 by INPUT. Reproduction Prohibited.

- The development capability that should be provided to users of hardware services is an item of debate within the RCS industry.

- Minihost systems (ADP Onsite I, NCSS 3200, etc.) provide the development capabilities available with the RCS host system.

  - Development can be done with a terminal connected to an Onsite I or to the ADP Network Services host.

    . Programmers developing jobs on a terminal connected to either would not experience any real difference in their work relative to work done on the host.

    . Jobs that were developed on the host, including old applications, could be moved to minihosts and run there.

- Work that is developed on enhanced terminals or linked minis or micros would not be compatible with the host systems.

  - Work cannot be moved from a GE host to the Marklink conveniently.

  - Similarly, reprogramming would be necessary to move RCS work from CSC to its hardware service which uses the DEC 11/23 or 11/44.

- The GE Marklink has software development aids and programming languages that would allow input editing, output formatting, and small applications development.

  - It could not develop systems as complex as those which could be developed on a minihost.

  - In contrast, the Xerox 1350 has no development capability.

©1981 by INPUT. Reproduction Prohibited.

- The CSC hardware service has development capabilities that help users format screens, set up files or databases, and generate application modules. CSC also provides aids for communication between host RCS services and the linked mini.

- Some offerings of minis are delivered with package applications.

  - McAuto and Shared Medical deliver this type of system to hospitals. Boeing and ADP have delivered them to banks.

  - In these types of turnkey systems, there may be little or no provision for development work by users.

  - Enhancements to these systems may be controlled or prohibited by the vendor.

C. APPLICATION PACKAGES

- Minihost systems can offer any of the applications available on the RCS.

  - Installations of the NCSS 3200 use financial applications that were developed on the NCSS system in the NOMAD DBMS.

  - ADP has cash management systems developed on its network service which are offered to prospects with the Onsite I.

- The newer RCS vendors noted in Section II-A can also deliver application packages running on RCS with a hardware service.

  - Spectrum Timesharing has developed RCS applications in the apparel industry which have been moved to customer sites on Ultimate minis.

©1981 by INPUT. Reproduction Prohibited.

- Berkshire Timesharing has developed applications in education, health, and transportation which have been moved to customer sites on compatible minis.

- RCS vendors offering noncompatible computers have had to develop or obtain application packages.

  - GE has developed packages to handle input editing and print formats for the Marklink.

    . Applications are being developed to handle inventory, receivables, and distribution according to the needs of customers and prospects.

  - CSC has developed applications with customers for its hardware service, DNS.

    . These applications are in such areas as inventory, receivables, ledger, and paper production.

    . CSC seems prepared to help develop applications for any area that users are interested in.

    . This is a broader approach than most vendors would consider.

- SBC can deliver up to seven of the applications running at its batch centers in versions that run on its CBS hardware service.

  - These applications include order entry, inventory control, accounts receivable, accounts payable, general ledger, and payroll.

  - Normally, the customer cannot change the software or develop other application systems on these hardware services.

©1981 by INPUT. Reproduction Prohibited.

. Enhancements, modifications, or data communication would have to be requested from the vendor.

D. NETWORKING POTENTIAL

- RCS vendors provide data communication and processing capabilities at the sites involved with their hardware services and use their networks to collect and disperse data. Data are consolidated on the RCS host or forwarded to customer centers.

- RCS vendors can interface to customer protocols, speeds, etc. as needed.

  - Several RCS vendors are implementing SNA and SDLC to meet needs of this kind.

  - Special communication equipment is being developed for RCS vendors to expand their capabilities.

- The hardware services that are offered for network applications include intelligent terminals, minihosts, and linked minis.

  - An intelligent terminal, such as the Xerox 1350, can facilitate data gathering and reporting.

  - The addition of programming capabilities to an intelligent terminal can aid input editing and preprocessing of terminal input.

    . The GE Marklink has exploited these capabilities successfully.

    . At least three other RCS vendors are announcing competitive offerings.

©1981 by INPUT. Reproduction Prohibited.

- Minihosts or linked minis, such as the CSC DNS, are offered as regional or site concentrators for terminal input.

  . The Marklink can be used for data entry from a number of terminals or as a concentrator.

E. INCLUSION OF OTHER SERVICES

- A number of services may be provided, with or without an extra charge, with hardware services. These include:

  - System development.

  - Hardware and software problem diagnosis and maintenance.

  - Training in operations and programming.

  - Archiving and retrieval procedures.

  - Storage of backup files at vendor sites.

- System development is supplied in most cases at an extra charge.

  - Smaller RCS vendors who sell hardware services on an OEM basis may package some system development work with the cost of hardware.

  - Most system development work by RCS vendors for a hardware service is done at an hourly or daily rate.

- Operations training is usually provided on-site at no charge.

©1981 by INPUT. Reproduction Prohibited.

- An introduction to the hardware service is also provided at no charge by a number of vendors.

- Some training in programming for the hardware service is provided on-site by a few vendors, but most provide training on-site or off-site at a charge.

- Vendors who offer a hardware service based on a standalone or linked mini utilizing software provided by the mini manufacturer, utilize training programs provided by the manufacturer.

  - CSC has directed customers for its linked mini (DEC 11/23, 11/44, etc.) to courses offered by DEC.

F. MARKETING APPROACHES

- Most RCS sales personnel handle both remote processing and hardware services.

  - Prospects have been given the option of considering the use of hardware services or RCS.

  - Commission plans have motivated sales representatives to sell RCS rather than hardware services.

  - Many companies are reviewing this joint RCS/hardware services sales approach.

- A few RCS vendors or their sales representatives have developed approaches of selling RCS when possible and offering hardware services when it is obvious that the prospect is not interested in remote processing.

©1981 by INPUT. Reproduction Prohibited.

- One RCS vendor has an argument prepared for use against minis called "The Myth of Mini," but this argument is dropped and minis are sold when the prospect indicates that he is planning to install a mini.

- Another major vendor tries to sell RCS to prospects who have not used computing before, and emphasizes hardware service to prospects who use or plan to use a competitive RCS vendor or a mini.

- CSC limits its hardware services offerings to accounts which use its RCS above a level of $1,000 per month.

- Most RCS vendors will offer their hardware services to any prospect, but efforts have been limited due to the lack of experience in selling hardware or combinations.

• Several vendors, such as NCSS and TSR, have added sales and technical representatives to their staffs who have experience with hardware selling.

- This is done more by vendors of minihost and standalone minis than by vendors of enhanced terminals.

- Some RCS vendors are upgrading the training for sales representatives in systems and equipment planning because they realize that the expansion of hardware services and entry into complex data processing applications will require more data processing knowledge.

• As vendor representatives have zeroed in on customer application needs they have accelerated the qualification process; i.e., Does the prospect need remote processing or a hardware service?

- Experience in marketing is causing RCS vendors to concentrate less on an attempt to direct customers and more to meeting the needs of users.

©1981 by INPUT. Reproduction Prohibited.

- A basic question in devising marketing strategies for hardware services concerns whether end users are separating themselves from central EDP and becoming more autonomous. In a 1980 survey, INPUT found that:

  - Most EDP managers felt that it was not the case now.

  - Most end users felt that this was becoming the case.

  - There is a growing indication that the portion of EDP systems procured directly by end users will be less than one-third.

- Marketing and sales strategies for hardware services must consider the procurement process which involves an interaction among the end user, EDP manager, financial management, and top management. This interaction normally includes the following steps.

  - Identify need.

  - Establish justification.

  - Select vendor.

  - Approve vendor.

  - Approve procurement.

- If this process is understood as well as the growing cooperation between end users and data processing departments, marketing effort could be considerably reduced.

- The procurement decision process takes an average of five months, ranging up to 24 month, from initiation to final decision. It varies considerably with the size of the system.

©1981 by INPUT. Reproduction Prohibited.

- Computer procurement will continue to be controlled by corporate management. There is little indication that it will be delegated.

  - Establishing justification is a joing effort by end users and EDP managers, with occasional involvement by corporate financial officers.

  - Vendor selection is the province of EDP managers. End users have an involvement in the selection, but not responsibility.

  - Vendor approval involves both financial and top management acting on the recommendations of the EDP managers.

  - Final approval of the procurement is generally reserved for top management, with recommendations from the chief financial officer. The end users and EDP managers generally do not have this authority.

  - Procurement of computer equipment and services is treated as a capital expenditure.

G. PRICING AND BUNDLING OF SERVICES

- Hardware services are rented, leased, and sold, as illustrated in Exhibit II-2.

  - Rental and lease are more popular with customers of minihosts and intelligent or enhanced terminals.

    . Customers are used to paying monthly bills for terminals and remote computing services.

  - RCS vendors offer discounts for rental and lease contracts of two or more years.

©1981 by INPUT. Reproduction Prohibited.

EXHIBIT II-2

SELECTED PRICING AND BUNDLING OF SERVICES

COMPANY OFFERING	SIZE OF SYSTEM	PRICE	BUNDLED SERVICES
ADP Onsite I	512 KB core 570 MB disk 600 lpm printer etc. CRTs not included	Approximately $18,000/monthly (2-year contract)	Operating systems, tools, programming languages, maintenance, and education
CSC DNS	256K core 10 MB disk Printer 2 CRT terminals	Approximately $2,900/monthly (1-year contract)	Operating systems, some tools and programming languages, maintenance, and education
GE Marklink	96K core 10 MB disk 2 printers CRTs not included	Approximately $2,900/monthly (1-year contract)	Operating systems, tools, programming languages, maintenance, and education
NCSS 3200	768 KB core 400 MB disk 600 lpm printer, tape drive, etc. CRTs not included	Approximately $20,000/monthly (2-year contract)	Operating systems, and education
Tymshare Tymcom XX	256K core 200 MB disk 600 lpm printer communication processor etc.	Approximately $22,000/monthly (2-year contract)	Operating systems, tools, languages applications, maintenance, and education

©1981 by INPUT. Reproduction Prohibited.

- Linked and standalone minis are generally sold.

  . Many of these systems are sold as turnkeys.

  . The CBS service of SBC is available only for purchase at this time.

- A number of services may be bundled into the lease price or available for an extra charge, including:

  - Training in operating or programming beyond an introductory period.

  - Software, including operating systems, DBMS, development tools, programming languages, etc.

  - Application packages.

  - Hardware maintenance.

  - Software maintenance.

  - Archival storage at the vendor site.

  - Aid with archival storage, recovery, etc.

- When asked, several vendors are willing to unbundle services.

- Vendors will bundle services during competition in order to offer more attractive prices.

- The complexity of extra charges is one of the factors that prospects find difficult to deal with when considering hardware services.

©1981 by INPUT. Reproduction Prohibited.

III MARKETING STRATEGIES

A. RETAIN CUSTOMERS

- Retaining customers is the chief strategy used in the development of hardware services.

  - This strategy is implemented by reducing RCS charges, offering a means of moving work in-house as a hardware service, or assisting a customer to address new application needs with a hardware service.

- Intelligent and enhanced terminals can reduce connect time charges and may significantly reduce processing charges.

  - A straightforward strategy that can be used to reduce costs is to convert many jobs to the intelligent terminal and leave a small number of large jobs on the RCS.

  - The minihost and most of the linked or standalone minicomputers offered as hardware services can provide a customer with the opportunity to reduce connect, processing, and storage charges to a fixed plateau of charges.

©1981 by INPUT. Reproduction Prohibited.

- Instead of paying a variable amount between $30,000 and $60,000 per month based on usage, the user of an ADP Onsite I system may pay a monthly bill of $22,000.

- The customer would pay extra charges each month for the use of the host machines to run extremely large jobs or to send and review data.

- Minihosts such as the ADP Onsite I or the TSR Megamini address the cost problem by offering part of a machine for use at the vendor's site for those customers without sufficient RCS charges to justify a minihost or standalone mini.

- ADP offers their service down to the one-fourth machine level.

- A hardware service can also be used to retain customers by offering an alternative to a mini from a hardware or software turnkey vendor.

  - Minihosts have the advantage of being able to run RCS work without the expense of development and conversion. Capabilities of ADP or Tymshare applications could be immediately obtained with the Onsite I or TYMCOM XX.

  - The use of NOMAD could be immediately obtained with an NCSS 3200.

- RCS vendors should emphasize their reputation, experience with applications, network services, technical capabilities, etc.

B. ADD TO RCS BUSINESS

- RCS vendors can increase revenues from processing and networks services by offering hardware services, particularly in new applications development.

©1981 by INPUT. Reproduction Prohibited.

- Hardware services may be sold to firms together with application packages or development work where there is a likelihood that seasonal workloads or application expansion can create an overload on the user's system.

- An RCS vendor who processed financial modeling on its host along with general ledger, AR, and AP for a firm in the transportation industry installed a mini to enter and process AR, AP, and ledger entries at the user's site, and provided data collection and financial modeling on the host computer.

C. EXPAND BUSINESS INTO NEW AREAS

- Some vendors are exploiting the potential in providing a fast solution to user problems with hardware services.

  - System development may make use of software that the vendor has developed for other customers where requirements are similar.

  - A system may be developed, tested, and run on RCS before it is delivered to the customer on a minicomputer.

    . This type of work requires campatability in the software used on the host system and software used on the mini or micro offered as the hardware service.

- Hardware services have provided an opportunity for RCS vendors to package their application expertise in minis as turnkey offerings.

  - The most ambitious offering of this type is the family of CBS systems from SBC which package the business applications used in SBC batch processing centers.

©1981 by INPUT. Reproduction Prohibited.

- RCS vendors are considering packaged approaches that would offer a function on a small mini or micro.

  - One vendor plans to offer portfolio management on a micro, with the analytic work done on the micro while retaining files and major processing on the RCS.

D. PROVIDE A TOTAL SERVICE

- In order to market hardware services more effectively, RCS vendors should begin to broaden the descriptions of their services.

  - Rather than describe capabilities as information processing and hardware services, some RCS firms, such as GE, now state that they offer total DP services.

    - This includes processing, hardware services, network capabilities, professional services and application development.

- The position of offering a total service provides a vendor with the task of facing the DP department, as well as end users.

- To present the DP department with a total services approach, the sales and technical staffs will have to be trained in DP planning, finance, and communications as they relate to the internal operation of a DP department.

- INPUT believes that the trend will be for the end users to separate themselves more from the EDP department as applications development at the user's site and user's participation in DDP become more prevalent.

  - However, marketing strategies for hardware services must include the data processing manager.

©1981 by INPUT. Reproduction Prohibited.

- The EDP department plays an important role in the procurement of computer equipment and services by end users. Their responsibilities include:
  - Providing technical support and review to end users.
  - Selecting the computer service vendor.
  - Controlling and recommending approval of the procurement.
- Although retaining control, EDP managers are working closely with end users in the procurement of computer equipment.
- EDP managers regard those approaches for obtaining increased EDP capability which are not under EDP control as high risk.
  - Decentralized EDP in user departments, and development and operation of systems with end users by a service vendor, are both regarded by EDP managers as high-risk approaches.
  - In the case of development by a services vendor, the issue is one of lack of EDP department control.
  - The ability of hardware services vendors to maintain remotely placed equipment nationwide (not yet demonstrated) is a major concern of EDP managers.
- Many EDP managers are actively looking for design and programming tools and methods to assist in applications development.
  - Providing for applications development at the user site is an attractive way to help solve the problem.
  - Active consideration is also being given to buying application software products to meet some of the user's needs. Software systems are better

©1981 by INPUT. Reproduction Prohibited.

understood by EDP managers who appreciate the value of a DBMS, like NOMAD.

- Network capability to service new users and locations is another area of great interest to the EDP manager.

©1981 by INPUT. Reproduction Prohibited.

IV POSITIONING FOR THE FUTURE

A. PRESENT SITUATION

- RCS vendors are faced with a marketplace in which a substantial amount of work is being transferred to in-house computers.

  - The reasons for this change include cost savings, technological and cost advantages of newer computers, improved competition from hardware and software vendors, and the DP department's natural motivation to move RCS work in-house.

- Furthermore, small companies, such as Desk Top Financial Solutions Inc., are offering packages for micros that will handle financial modeling and related RCS applications.

  - These packages will typically handle 80% to 90% of the financial modeling applications now running on an RCS service.

- Many processing services are frozen in older computing technology, which may not be compatible with or complementary to hardware services.

- The following observations taken from the report, Opportunities for User Site Hardware Services of February 1979, are indicative of the present situation regarding hardware services.

©1981 by INPUT. Reproduction Prohibited.

- New RCS entrants to the USHS market will not complete making their initial new product introductions for at least another year. (1980)

- Large users will require one to two years of operating experience with the concept before making large scale commitments. (1980-1981)

- Most RCS vendors will require several years to develop the resources necessary to satisfy the maintenance requirements of serving a nation-wide network of distributed systems. (1982-1983)

- RCS vendors will have to develop new sales and marketing methods in order to sell to the data processing manager who has not traditionally been involved with RCS.

- Distributed data processing products offered by traditional hardware vendors pose a significant competitive threat.

- The net effect of USHS on RCS revenues is still uncertain from a user viewpoint. Users interviewed were evenly divided in their opinion on the impact: half felt RCS revenues would increase, and half thought they would decline.

• In essence:

- Users have become the leaders in the use of technology.

- Current investment in software and hardware assets must be upgraded or new technology built.

- Hardware services will be offered to and used by the user community.

- Vendors with significant market share must offer hardware services.

©1981 by INPUT. Reproduction Prohibited.

- Smaller vendors will have to revamp their current approach to their business in the coming years.

- Most public companies will have to reconsider their relationship to the financial community:

  . Will I continue to ask to be judged on earnings per share?

  . Can I substitute massive R&D investment for lower earnings per share?

B. ESTABLISHING A BROADER BASE OF SERVICE

- RCS firms will approach the user problems through offerings of software products, hardware services, network capabilities, facilities management, professional services, and processing services. These offerings will meet customer needs illustrated in Exhibit IV-1.

- RCS vendors will have to balance the organizational compartmentalization needed to offer a wide range of services, with the ability to provide the customers with the specific solution required.

  - Part of this balance is projecting the image of offering many solutions in an integrated fashion.

  - A rational marketing strategy must be developed which projects the many solutions offered by the vendor to the spectrum of potential users - from the first time user to the sophisticated data communications network user.

- Hardware services must be complemented with professional services and complementary data processing services such as file sharing and back-up.

©1981 by INPUT. Reproduction Prohibited.

EXHIBIT IV-1

RCS VENDOR CAPABILITIES AND USER NEEDS

RCS VENDOR STRENGTHS	BRIDGE PROVIDED BY RCS PROCESSING	PROSPECT/CLIENT PROBLEMS
Application software on-line and batch processing.		New enhanced systems delayed.
Data communications software network/lines.		Productivity improvement needed.
Software packages including development aids.		Technical skills are in short supply.
Technically trained people.		Lack of experience in new areas (on-line DBMS, data communication, networking).
Experience in rapid development of complex systems (using many techniques and languages).		
Data communication knowledge.		

©1981 by INPUT. Reproduction Prohibited.

- The data processing department offers a brand new marketplace for TCS vendors:

  - Sales strategies and product offerings should be specifically tailored to this functional group.

  - Applications areas would include:

    . Professional services for user departmnts.

    . Program development.

    . Peak processing assistance.

    . Network services.

    . Processing services for rapid development as a supplement until work can be moved in-house.

    . As an example, Boeing Computer Services has announced SNA and SDLC capabilities as well as communications hardware specifically oriented to the DP management on an interim, and on a long term basis.

- Smaller firms may consider the same broad range of services but for specific applications or industry segments.

- Addressing the DP department marketplace is part of the larger question of; what are the new market areas that vendors should be addressing?

  - A number of the growth firms in the information services industry attacked non-traditional markets, i.e., hospitals, energy, and manufacturing.

©1981 by INPUT. Reproduction Prohibited.

- Most vendors currently plan to address their current customer markets.

C. MIGRATING SERVICES TO NEWER TECHNOLOGY

- Most current RCS applications software is built on systems software and software concepts that are five to ten years old.

- With the cost of computing and storage dropping rapidly and with basic communications network costs projected to rise sharply, it is time to reevaluate the current means of providing service.

  - Can new technology be built into the current service to reduce the cost of delivery?

  - Can the foundation application and system software be modified to take advantage of new efficiencies?

  - Should new standalone software systems be built?

  - Should the vendor's acquisition plan include new firms specializing in advanced system software development?

- RCS firms have introduced many capabilities to the DP marketplace.

  - Examples include new DBMS, user-friendly software, new development techniques, financial modeling, and statistical packages, the use of packet networks, etc.

  - RCS firms are now introducing relational data base capabilities and graphics to many users.

©1981 by INPUT. Reproduction Prohibited.

- Advances in hardware such as intelligent terminals, high-speed printers, graphics hardware, etc. have been tried on RCS services by many users before bringing them in-house.

- RCS firms emphasize R&D expenditures in their financial literature.

  - How much of that R&D is applications product/enhancement as opposed to new systems projects?

- New technology will also have to be looked at in terms of how basic services are delivered.

- New developments in minis and micros will provide a basis for an RCS vendor to reconsider the efficiency and cost effectiveness of applications functions relative to host or hardware services processing.

  - Preprocessing might be moved from the RCS to new equipment at the user's site.

  - Functions such as financial modeling or graphics processing might be moved to a new micro at a user's site.

  - Perhaps an entire application that required very reliable operation might be moved to a hardware service.

D. RECOMMENDATIONS

- The offering of hardware services creates a "tiger by the tail" situation for the information services industry vendor.

  - If you don't offer hardware services to your customers, someone else will.

©1981 by INPUT. Reproduction Prohibited.

- If you do, you face the possibility of a short-term revenue reduction.

- If you decide to offer a hardware service, you face a substantial investment in capitol and personnel.

- If you do, you may have to revamp your organizational structure and marketing approach.

- Whether the vendor's aim in offering a hardware service is revenue protection or new revenue generation, the question to be addressed is not, "Should I offer hardware services?", but rather "How do I offer hardware services?".

- RCS firms should offer an intelligent terminal, whether or not other hardware services are offered.

  - Intelligent terminal use is expected to grow at an AAGR of over 35%.

  - The intelligent terminal should offer system development capabilities.

  - This device should take advantage of developments in microtechnology.

- RCS firms should be prepared to offer applications on minicomputers when customers and prospects appear ready to move to in-house computers.

- Hardware services should exploit communication and application expertise of the vendors.

  - Network applications in industries that have been customers is an ideal target.

- Hardware services should be introduced together with a campaign of making contact with DP management.

©1981 by INPUT. Reproduction Prohibited.

- The breadth of service capability should be stressed so that DP management will think of the RCS firm as a source of aid to address its problems.

- Contact with DP does not limit the ability of the RCS vendor to continue contacting end users or management.

- Investment in hardware services should be weighed carefully against the length of time (and risk of change) that will be required to bring the hardware service to market. To make hardware services a major revenue component will require considerable investment in capital and personnel.

- Hardware service should be investigated as a means of improving the cost/efficiency of the vendor service delivery system.

- Vendors should review their financial community relationships relative to the investment cost of the hardware services and its earnings per share impact.

- Additional training must be given to sales personnel to support hardware services.

  - Marketing programs, commission plans, etc. should be adjusted to encourage the objectives of the hardware service plan.

  - Additional support people may be needed in technical areas as well.

- A plan for hardware services should be developed and confirmed with market research before an offering is made.

  - The plan should address the relationship between hardware services and other capabilities of the RCS vendor.

  - Options for further steps in hardware service should also be considered in the plan.

©1981 by INPUT. Reproduction Prohibited.

- The impact of new hardware services on existing software and hardware technology must be carefully considered in the cost justification for such services.

©1981 by INPUT. Reproduction Prohibited.

APPENDIX A: DEFINITIONS

- HARDWARE SERVICES - a product concept which includes one or more of the following:

  - Turnkey systems.

  - User site hardware.

  - Intelligent terminals.

- TURNKEY SYSTEMS - a combination of hardware and software integrated into a total system designed to fulfill the processing requirements of an application (or applications) for a user.

- USER SITE HARDWARE SERVICES. These offerings provided by RCS vendors place programmable hardware on the user's site (rather than the DP center). USHS offers:

  - Access to a communications network.

  - Access through the network to the RCS vendor's larger computers.

  - Significant software as part of the service.

©1981 by INPUT. Reproduction Prohibited.

- REMOTE COMPUTING SERVICES (RCS) provide data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer.

- SYSTEMS SOFTWARE PRODUCTS are software products which enable the computer/communications system to perform basic functions.

- APPLICATIONS SOFTWARE PRODUCTS are software products which perform processing to serve user functions.

- MINIHOST - a minicomputer which provides the software capabilities of the host computer, including the operating system, applications software, and development tools.

- INTELLIGENT TERMINAL - a device, with or without a microcomputer, which has the capability to handle input/output processing, communications protocol, storage, and basic data manipulation.

- A MICROCOMPUTER combines all of the CPU, memory, and peripheral functions of a computer on a chip of silicon. It may be sold in an integrated circuit package or with the addition of more memory and peripheral circuits packaged on a board or in a console.

- A MINICOMPUTER is usually a 12- or 16-bit computer which is provided with limited application software and support and represents a portion of a complete large system.

©1981 by INPUT. Reproduction Prohibited.

APPENDIX B: BIBLIOGRAPHY

DATE	TITLE	TYPE OF REPORT
August 1981	Market Trends In Professional Services	ISIP Report
May 1981	The Merging Of Hardware, Software And Services	ISIP Report
June 1980	New Hardware/Software/Communications Offerings From Services Vendors	ISP Vendor Watch Report
January 1980	Turnkey Systems Opportunities, 1979-1984	ISIP Report
February 1979	Opportunities for User Site Hardware Services	ISIP Report

©1981 by INPUT. Reproduction Prohibited.

SUBSCRIPTION PROGRAMS: Designed for clients with a continuing need for information about a range of subjects in a given area. All subscription programs are fixed-fee and run on a calendar-year basis:

- Management Planning Program in Information Systems - Provides managers of large computer/communications facilites with timely and accurate information on developments which affect today's decisions and plans for the future.

- Management Planning Program for the Information Services Industry - Provides market forecasts and business information to software and processing services companies to support planning and product decisions.

- Company Analysis and Monitoring Program for the Information Services Industry - Provides immediate access to detailed information on over 2,500 companies offering turnkey systems, software and processing services in the U.S. and Canada.

- Management Planning Program in Field Service - Provides senior field service managers in the U.S. and in Europe with basic information and data to support their planning and operational decisions.

MULTICLIENT STUDIES: Research shared by a group of sponsors on topics for which there is a need for in-depth "one-time" information and analysis. A multiclient study typically has a budget of over $200,000, yet the cost to an individual client is usually less than $30,000. Recent studies specified by clients include:

- Productivity Improvement, 1980-1983: Survival Strategies for EDP Executives

- Opportunities in Communications Services for Digital Information: A Study of User Networks and Needs

- Improving the Productivity of Engineering and Manufacturing Using CAD/CAM

- European Computer Services Markets

CUSTOM STUDIES: Custom studies are sponsored by a single client on a proprietary basis and are used to answer specific questions or to address unique problems. Fees are a function of the extent of the research work. Examples of recent assignments include:

- 1981 ADAPSO Survey of the Computer Services Industry
- Competitive Study of Government Bidding Rates for Software Development Contracts
- Analysis of Computer Services Opportunites for Personal Trust Systems
- Analysis of Disaster Recovery Services
- Survey of Computer and Financial Services Opportunities in the Health Care Industry
- Study of Supplemental Distributors for Sales of RCS to Small Businesses
- Analysis of Market Opportunities for VSI/VSLI CAD Products and Services

ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international consulting firm. Clients include over 100 of the world's largest and most technically advanced companies.

OFFICES

Headquarters
2471 East Bayshore Road
Suite 600
Palo Alto, California 94303
(415) 493-1600
Telex 171407

Dallas
Campbell Center II
8150 N. Central Expressway
Dallas, Texas 75206
(214) 691-8565

Detroit
340 N. Main Street
Suite 204
Plymouth, Michigan 48170
(313) 459-8730

Los Angeles
4676 Admiralty Way
#401 C
Marina Del Rey, California 90291
(213) 823-1230

New York
Park 80 Plaza West-I
Saddle Brook, New Jersey 07662
(201) 368-9471

Washington, D.C.
1730 North Lynn Street
Suite 400
Arlington, Virginia 22209
(703) 522-2118

UNITED KINGDOM
INPUT, Ltd.
Airwork House (4th Floor)
35 Piccadilly
London, W.1.
England
01-439-4442
Telex 269776

JAPAN
INPUT Japan
Suite 1106
7-7-26 Nishi-Shinjuku
Tokyo
Japan 160
(03) 371-3082

AFFILIATES

Australia
Infocom Australia
Highland Centre, 7-9 Merriwa St.,
P.O. Box 110,
Gordon N.S.W. 2072
(02) 498-8199
Telex AA 24434

Italy
PGP Sistema SRL
20127 Milano
Via Soperga 36
Italy
Milan 284-2850

INPUT Planning Services for Management